DISCOVERY

Author Affiliation:
[1]Department of Agricultural Economics and Extension, Cross River University of Technology, Calabar, Nigeria
[2]Department of Agricultural Extension and Rural Sociology, University of Calabar, Nigeria

*Corresponding author
Department of Agricultural Economics and Extension, Cross River University of Technology, Calabar,
Nigeria
Email: nsa.ayi@gmail.com
ORCID: 0000-0001-6177-290X

Contact List
Nsa Akiba Ayi nsa.ayi@gmail.com
Celestine Oyui Itanim celestineoyui@gmail.com
Ukwapu Chrisanthus Undiandeye ucjundiandeye@gmail.com

ORCID List
Nsa Akiba Ayi 0000-0001-6177-290X
Celestine Oyui Itanim 0000-0001-9070-6928
Ukwapu Chrisanthus Undiandeye 0000-0002-7933-4948

DISCOVERY
SCIENTIFIC SOCIETY

Socio-economic factors influencing utilization of electronic media in cassava production in Akamkpa LGA, Cross River State, Nigeria

Nsa Akiba Ayi[1*], **Celestine Oyui Itanim**[1], **Ukwapu Chrisanthus Undiandeye**[2]

ABSTRACT

The study analyzed the socio-economic factors influencing utilization of electronic media in cassava production in Akamkpa LGA, Cross River State, Nigeria. The study sampled 150 cassava farmers and a set of questionnaires was administered to them. Data obtained were analyzed using means, percentages, frequencies and multinomial regression. The result of the analysis of the socio-economic characteristics of the respondents revealed that 32.6 percent of the respondents were in the age range of 30-39 years, 73.6% of them were male and 65.3% were single. Educational status, farm size and household size have a significant influence on the utilization of electronic media by cassava farmers in the study area. Lack of training on ICT skills (85.4%), inaccessibility of extension workers/facilitators (69.4%), and language barrier (71.5%) were the three most rated hindrances in utilizing electronic media in cassava production in the area. Socio-economic factors are critical in the utilization of electronic media channels in cassava production in the area. Therefore, intermittent training should be organized in order to foster understanding and thus, utilization of electronic media to boost cassava production in the study area.

Keyword: Electronic media utilization in cassava production

1. INTRODUCTION

Without a doubt, agriculture plays a significant role in both human lives and the global economy (Omoregie and Aziken, 2022). Because of this, scientists, governments, and other professionals are always creating new technology to advance agriculture on both sectoral and farm level. For agricultural production-boosting technology to proliferate effectively, information and communication are essential components. In general, the agricultural industry is a very information-intensive one. The industry has access to an enormous number of sources of widely dispersed, locally contextualized information as well as a sizable number of research resources. It is founded on a steady stream of

information from the local, regional, and international markets (Omoregie and Aziken, 2022).

Cassava is one of the most important staple food crops in tropical Africa, with approximately 600 million people depending on it for food (Apata, 2019). It also accounts for around 80% of Nigerians' overall calorie consumption (Onyenma and Aroyehun, 2020). This is partly because it produces food energy effectively, is available all year long, tolerates bad weather, and is compatible with African agricultural and food systems. Numerous producers have become interested in cassava as a result of the increased demand for it on domestic and international markets. With promising prospects for an increase in the production and processing of cassava roots into cassava chips, edible cassava flour, composite flour, cassava starch, and garri for export, cassava's end-user markets are rapidly increasing (Oladoyin et al., 2022).

Communicating information on agricultural extension to farmers is a way of introducing them to new or improved methods, knowledge, innovations, and skills. Consequently, agricultural extension is a service that helps people, especially farm families, in promoting their farming practices and techniques, increasing their production efficiency and income, enhancing their quality of life, and raising their social, economic, and educational standards in rural life through educational procedures (Nwibo et al., 2022). Electronic media are means of communication that enable the simultaneous exposure of a sizable population to the same content. They include mediums that transmit information through sound (radio), moving pictures (television, video), and print (posters, newspapers, leaflets) (Akhter et al., 2021).

Electronic media are intriguing to extension services because of how quickly and affordably information can be spread across a vast area. Even though producing and broadcasting a radio program may seem expensive, when that cost is divided among the millions of people who might listen to the program, it turns out to be a relatively affordable way of spreading knowledge (Omoregie and Aziken, 2022). Every aspect of modern life, including agricultural extension, is increasingly connected to electronics. Farmers are embracing electronic media more frequently to increase access to and sharing of knowledge globally. It could enhance the agriculture sector's effectiveness, output, competitiveness, and growth in a number of ways (Ekanem and Ekerete, 2018).

Despite the significance of cassava, farmers in the study region still employ antiquated practices in their farming, including manual weeding, long-season varieties, and irregular spacing, among other things, indicating a lack of awareness about contemporary farming practices. In order to meet the increasing demand for cassava products around the world, Omoregie and Aziken, (2022) claim that cassava production must expand. This increase in production can be achieved by adopting innovations. But if farmers are restricted, this cannot be accomplished. Additionally, it is challenging to address the information demands of many farmers due to the egregiously inadequate Extension agent to farmer ratio (Albert and Joseph, 2020).

Therefore, using electronic media to get innovative knowledge about various aspects of cassava cultivation may be the best option. However, socio-economic limitations, low ICT readiness, poor ICT infrastructure, erratic and unstable power supplies, limited and expensive phone services, limited access to computers and the internet, a lack of government communication policies, high levels of rural poverty and illiteracy, inconsistent policy, and the commercialization of radio stations are just a few of the explanations put forth by previous research for cassava farmers' non-use of electronic media (Omoregie and Aziken, 2022; Odor et al., 2022).

Additionally, it is unknown if electronic media has been used to provide rural farmers in Akamkpa with the necessary agricultural expertise to boost cassava output there. Therefore, the objective of this study was to determine how socio-economic factors affect the proper use of electronic media in the Area's cassava production. The study evaluated the socio-economic variables that affect how electronic media are used in the study area to produce cassava. Specifically, the study determined the socio-economic factors influencing electronic media utilization among cassava farmers; and identified constraints faced by farmers in the use of electronic media. The study tested one hypothesis, which was stated in the null form as "there is no significant relationship between the socio-economic characteristics of respondents and the utilization of electronic media utilization".

2. METHODOLOGY

The study was conducted in Akamkpa Local Government Area of Cross River State, Nigeria. The area has a landmass of 5,003km^2, making it the largest local government by area in Cross River State. It lies between Latitudes 5.^{0}00''N and 5.^{0}57''S of the equator and longitudes 8^{0}06''E and 9^{0}00''W of the Greenwich Meridian. Akamkpa LGA has ten (10) council wards. Akamkpa is located within the rainforest zone of Cross River State, with a mean annual rainfall of 2500-3000mm, a mean annual temperature of 26-27°C and a mean relative humidity of between 80-90% at the peak of the rainy season. Cassava and plantain are the major crops produced by the people of Akamkpa LGA; however, other crops such as vegetables, cocoyam, oil palm, banana, yam and maize are also commonly produced.

Multi-stage sampling procedure was adopted for the study. In the first stage, 5 cells were purposively selected out of the 10 cells in the block, based on the predominance of cassava production. In the second stage 2 villages were randomly selected from each cell selected in stage one, giving a total of 10 villages. The third stage involved obtaining a list of registered cassava farmers from the Area Extension Officer (AEO) in the block. From the list containing 585 registered cassava farmers, which constituted the sampling frame in the 10 villages, a proportionality factor of 25% was used to randomly select the sample size, totaling 150 respondents.

Data for this research was collected through secondary and as well as primary sources. Secondary was collected mainly from peer-reviewed journal articles and conference proceedings. Primary data were collected using a structured questionnaire. Based on the objectives of the study - information on utilization of electronic media, a list of electronic media was provided for respondents to indicate the level of utilization of each media on a three-point Likert-type scale of 'always' (3), 'occasional' (2) and 'never' (1). The cut of cut-off mean was 2. To obtain information on constraints faced by farmers in the use of electronic media, a list of possible constraints was provided and respondents indicated 'Yes' or 'No'. Objective II was analyzed using frequency, percentages, ranks and means. Objective I was analyzed using multinomial logistic regression.

The implicit model of the multinomial regression is given as:

$Y = f(X_1 + \ldots X_n + u)$

Where:

Y = Dependent variable (utilization of e-media: 0=Always, 1=Occasional, 2=Never utilized)

X_1 = Age (years)

X_2 = Sex (male=0, female=1)

X_3 = Education (educated=0, 1=Otherwise)

X_4 = Years of farming experience (years)

X_5 = Household size (number)

X_6 = Size of farm (Ha)

X_7 = Marital status (married=0, 1=Otherwise)

u = Error term

The hypothesis was tested using multinomial regression analysis. This model is mathematically stated thus:

$Y = f(X_1 + \ldots X_n + u)$

Where:

Y = Dependent variable (utilized e-media: 0=Always, 1=Occasional, 2=Never utilized)

X_1 = Age (years)

X_2 = Sex (male=0, female=1)

X_3 = Education (educated=0, 1=Otherwise)

X_4 = Farm size (Ha)

X_5 = Marital status (married=0, 1=Otherwise)

X_6 = Household size (number)

X_7 = Years of farming experience (years)

X_8 = Annual income (₦)

X_9 = Access to extension (dummy)

X_{10} = Source of farmland (dummy)

u = Error term

3. RESULTS AND DISCUSSION

Socio-Economic Factors Influencing Electronic Media Utilization

Table 1 presents the result of the multinomial regression of socio-economic factors influencing electronic media utilization by cassava farmers in the study area. The model produced a Nagelkerke R^2 value of 0.519. This value, which is the pseudo-R-squared, implies that only 51.9% of the variations in the dependent variable were explained by the fitted independent variables. The results reveal that age positively influenced the utilization of electronic media by cassava farmers in the study area. It showed that a one-year increase in the age of farmers will increase their utilization of electronic media by about 2.588%. The weakness of the relationship is also seen in the low Wald statistic, which is the equivalent of the t-statistic.

However, the odds ratio, which is exponentiation of the coefficient, reveals that a one-year increase in the age of farmers will lead to a 13.3 percent increase in their utilization of electronic media, although this variable was not statistically significant. This is

in agreement with the finding of Odor et al., (2022), who's studies titled "socio-economic factors influencing the utilization of information and communication technologies among cassava farmers in Abia state, Nigeria" revealed that age was a positive and significant influencer of ICT usage in cassava production among farmers.

The results of sex, marital status and years of farming experience reveals correlation value of -1.099, -0.610 and -0.130, which depicts an inverse but weak influence on electronic media utilization. However, the results of the odds ratio are all less than 1, which implies that as male farmers decrease in the study area, and as the years of experience in cassava farming dwindle, utilization of electronic media decrease too. These variables had p-value of 0.599, 1.000 and 0.471, which is statistically not significant. This result is in tandem with the findings of Nwaobiala and Anyanwu, (2018).

Educational status, farm size and household size were all significant at p<0.05, which implies that these variables had statistically significant influence on the utilization of electronic media by cassava farmers in the study area. The positive coefficients of the variables educational status and farm size had negative coefficients (2.435, 5.832 and 2.414, respectively), indicates a direct influence on electronic media utilization, meaning that as these variables increase, utilization of electronic media by cassava farmers in the study area will consequently increase. The result corroborates with that of Odor et al., (2022), who found that age, marital status, educational level, farming experience, were positive and significant in influencing the utilization of ICT in cassava production in Abia state, Nigeria.

Table 1 Socio-economic factors influencing electronic media utilization by cassava farmers

Variables	Coefficient	Wald statistics	B(Exp)
Age	2.588	1.473	13.302
Sex	-1.099	0.965	0.333
Educational status	2.435	4.685	0.88*
Farm size	5.832	5.016	0.003*
Marital status	-0.610	0.000	0.543
Household size	2.414	0.004	4.626*
Years of experience	-1.130	0.520	0.323
R^2	0.519		

Source: Field data, 2021   *P≤0.05

Constraints to Use of Electronic Media

Table 2 presents information on the distribution of respondents based on constraints they faced in the use of electronic media in the study area. The result reveal that lack of training on ICT skills (85.4%), inaccessibility of extension workers/ facilitators (69.4%), language barrier (71.5%), poor power supply (81.9%), lack of technical know-how (78.5%), poor transmission/network (80.6%), among others were among these constraints.

From Table 2, the three most cited constraints hindering farmers' use of electronic media are inadequate training; not enough time to spend on technology; and poor power supply. This result is comparable to that of Omoregie and Aziken, (2022), who discovered, among other things, inconsistent power supply (98.5%), low level of education (93.1%), language barrier (92.3%), and lack of ICT skills (91.5%), as some of the constraints that farmers faced in the use of ICTs.

Table 2 Constraints faced in the use of electronic media

Variables	% (n-144)
Lack training on ICT skills	85.4
Not enough time to spend on technology	82.6
Poor power supply	81.9
Poor transmission/network	80.6
Lack of technical know-how	78.5
High cost of electronic media facilities	77.1
Distance from other farmers who possess technical knowledge	74.3
Inadequate exposure/training to use electronic media	72.2
Inadequate awareness/information about electronic media methods	72.2
Inadequate access to electronic media	71.5

Language barrier	71.5
Messages from electronic media sources are hard to understand	70.8
Inaccessibility of extension workers/facilitators	69.4

Source: Field data, 2021   (* = Multiple response)

Relationship between Socio-economic Characteristics of Farmers and Utilization of Electronic Media

Table 3 shows a Nagelkerke R^2 value of 0.653. This value, which is the pseudo-R-squared, implies that 65.3% of the variations in the dependent variable were explained by the fitted independent variables. Age, farm size, annual income, access to extension and source of farmland had positive coefficients, and were all significant at 5%, while variables like educational status and household size also had positive coefficients. This result indicates that these socio-economic variables had a direct relationship with the utilization of electronic media. This implies that as these variables increase, the utilization of electronic media will consequently increase. The statistical significance of these variables means that their relationship and influence on the utilization of electronic media by cassava farmers in the study area is critical.

On the other hand, sex, marital status and years of experience, were all not statistically significant, implying that their relationship with electronic media utilization is not critical, and as such, they do no influence the use of electronic media by cassava farmers in the study area. This is similar to the findings of Ekanem and Ekerete, (2018), that marital status and farming experience were statistically insignificant in influencing e-media utilization in Akwa Ibom state.

Table 3 Socio-economic factors influencing electronic media utilization by cassava farmers

Variables	Wald statistics	B(Exp)
Age	4.208*	13253.75
Sex	1.080*	0.114
Education	7.148*	0.001
Farm size	3.605*	1.150
Marital status	0.000	0.081
Household size	7.469	12470.17
Years of experience	0.002	1.279
Annual income	3.328	0.004
Access to extension	4.407	83.78
Source of farmland	3.881	0.008
R^2	0.653	

4. CONCLUSION AND RECOMMENDATIONS

When used, e- Socio-economic factors like household size, farm size, and educational status have a significant impact on how much electronic media is used by cassava farmers. Women should be encouraged to work in the cassava industry. Additionally, it is important to promote education in the region, which will eventually result in a rise in the use of electronic media in cassava production. To promote comprehension of the use of electronic media, intermittent training should be organized. Farmers should be encouraged to form groups so that they can pool their resources together to pay for ICT training and purchase internet services like data for internet connectivity.

Author's contribution

ANA conceptualized the research idea, developed the methodology and analyzed the research data (45%). ICO wrote the background and collected research data (35%). UUC read, corrected and improved the manuscript (20%).

Informed consent

Not applicable.

Ethical approval

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interests.

Funding

The study has not received any external funding.

Data and materials availability

All data associated with this study are present in the paper.

REFERENCES AND NOTES

1. Akhter P, Hussain T, Basit A. Consumption of mass media and adoption of recommended practices in agriculture sector: A survey of District Bahawalpur. Linguist Antverp 2021; 1(3): 7447-7463.

2. Albert UO, Joseph OO. Exploring Indigenous Knowledge for Sustainable Agricultural Development: The case for Agricultural knowledge and Information System (AKIS) in Nigeria 2020.

3. Apata TJ. Analysis of cassava value chain in Nigeria: Pro-poor approach and gender perspective. Int J Value Chain Manag 2019; 10(3):219-237.

4. Ekanem JT, Ekerete BI. ICT Utilization among Cassava Farmers in Peri-Urban Areas of Akwa Ibom State, South-South Nigeria. J Community Commun Res 2018; 3(1):50-56.

5. Nwaobiala CU, Anyanwu CG. Awareness and utilization of cassava production technologies among farmers in Imo state, Nigeria. Niger J Rural Sociol 2018; 18(1):22-27.

6. Nwibo SU, Mbam BN, Odoh NE, Egwu PN, Uloh FU, Oken DE. Influence of Mass Media Promoted Agricultural Programmes on Arable Crop Production in Ezza North Local Government Area of Ebonyi State, Nigeria. Niger Agric J 2022; 53(1):388-395.

7. Odor PC, Amadi PE, Mgbeahuru C, Onuegba I. Socio-economic factors influencing the utilization of information and communication technologies (ICTs) among cassava farmers in Abia state, Nigeria. J Community Commun Res 2022; 7(1):166-172.

8. Oladoyin OP, Akinbola AE, Aturanmu OA, Ilesanmi JO. Economic analysis of cassava production in Akokodistrict of Ondo state, Nigeria. World J Adv Res Rev 2022; 14(1):391-399. doi: 10.30574/wjarr.2022.14.1.0348

9. Omoregie O, Aziken GO. Analysis of Utilization of Information and Communication Technology (ICT) Among Cassava Farmers in Aniocha South Local Government Area of Delta State, Nigeria. FUDMA J Agric Agric Technol 2022; 8(1):251-257.

10. Onyenma G, Aroyehun R. Technical efficiency in value addition to cassava among small scale fufu processors in Abia State, Nigeria. J Agric Econ Ext Res Stud 2020; 8(3):78-85.